REMARKS/ARGUMENTS

Claims 1-7 and 12-27 stand rejected, with claims 8-11 objected to in the outstanding Official Action. Applicants have cancelled without prejudice claims 2 and 3 and amended claims 1 and 4-7 and added newly written claims 28-31. Therefore, claims 1 and 4-31 are the only claims remaining in this application.

The Examiner's confirmation of Applicants' claim for priority and receipt of the certified copies of the priority documents is very much appreciated. Additionally, the Examiner's indication of PTO acceptance of the previously filed formal drawings is appreciated. Finally, the Examiner's consideration of the prior art identified in Applicants' previously submitted Information Disclosure Statement is appreciated.

The Patent Office objects to the Abstract and the arrangement of the specification. It is also appreciated that the Examiner has brought the Abstract, and the arrangement of the specification to the applicant's attention. It is noted that the objection to the Abstract, and the arrangement to be an indication that the originally filed specification and drawings (transmitted from WIPO) do not meet the formality requirements of the U.S. Patent and Trademark Office. The Patent Office is reminded that the U.S. Patent and Trademark Office must comply with all articles of the Patent Cooperation Treaty (PCT) including Article 27. It has been held that:

"if the rule and interpretation of the PTO conflicts with the PCT, it runs afoul of Article 27 of the PCT which provides in part:

> (1) No national law shall require compliance with requirements relating to the form or contents of the international application different from or additional to those which are provided for in this Treaty and the Regulations." Caterpillar Tractor v. Commissioner, 231 USPQ 590, 591 (EDVA 1986).

The Patent Office has referenced this decision in the Official Gazette dated September 9, 1986 (1070 TMOG 5).

As a consequence, the Patent Office may not require Abstract changes, or specification format changes (including changes in paper size, margins, etc.) as long as the originally submitted documents comply with the PCT requirements. Inasmuch as this specification was forwarded for WIPO, by definition, it meets the PCT requirements (it is not forwarded until it meet PCT requirements.). Therefore, the objection to the Abstract, and the specification is respectfully traversed and reconsideration thereof is respectfully requested.

Notwithstanding the above, applicant has included an amended Abstract, and has added headings and subheadings to the specification.

Claims 1-5, 7, 13, 15-17, 21 and 23-26 stand rejected under 35 USC §102 as being anticipated by Kadar ("Integrated Resonant Magnetic Field Sensor"). Applicants' amended claim 1 includes the subject matter of claims 2 and 3, now cancelled. As amended, claim 1 positively recites the elements making up the resonant magnetometer. Those components comprise an oscillatory member and a means for passing alternating current through the oscillatory member for imparting an oscillatory force on said member. A driver is also provided to impart a magnetic field independent oscillatory force on the oscillatory member. Claim 1 as amended also specifies that an alternating current is derived directly from the oscillation of the oscillatory member without need for a separate frequency generator source. Furthermore, it is required that there be a "positive feedback self resonant drive signal" provided to the oscillatory member.

In order to anticipate claim 1 or any claim dependent thereon, it is necessary that every one of the above structures be disclosed in a single reference as well as every single claimed interrelationship between elements. If objectively reviewed, the Kadar reference clearly does not disclose all of the elements and interrelationship between elements which are specified in Applicants' independent claim 1.

In Kadar (Figure 2.3), the signal from the capacitor sensor is demodulated to a lower frequency (note the synchronous detector followed by the low pass filter). This lower frequency is then amplified and fed back to the feedback capacitors. Instead of implementing a positive feedback self resonant drive signal as claimed in claim 1, Kadar feeds back a lower frequency at best. The detection and filtering stage of Kadar clearly establishes that the signal fed back is not at the resonant frequency of the oscillatory member. As a result, there can be no positive feedback self resonant circuit as recited in claim 1 present or disclosed or even suggested in the Kadar reference.

Of course the purpose of the feedback structure in Kadar is not to drive the oscillatory member at its resonant frequency. This is clearly stated in Chapter 8, Conclusions (last full paragraph on page 1) wherein it is defined as extending the dynamic range of the sensor. This allegedly fed back signal will have a different frequency as compared to the resonant frequency of the oscillatory member, especially in view of the detection and filtering that it undergoes.

Additionally, the means for passing an alternating current as required in claim 1 is derived from the oscillation of the oscillatory member without using a separate frequency generator source. Kadar does not have this and instead utilizes a separate frequency input

labeled f_1. Thus, Kadar does not disclose Applicants' claimed "means for passing an alternating current."

In view of the above two missing features, as well as the missing interrelationship, Kadar clearly fails to anticipate claim 1 or any claims dependent thereon under the provisions of 35 USC §102(b) and any further rejection thereunder is respectfully traversed.

Claims 1, 14 and 16-20 stand rejected under 35 USC §102(e) as being anticipated by Funk (U.S. Patent 6,486,665). Applicants' independent claim 1 specifies the "means for passing an alternating current" "to impart a magnetic field independent oscillatory force to said oscillatory member." There is no disclosure in the Funk reference of any structure, means-plus-function or otherwise, which provides an "oscillatory force to said oscillatory member." In fact, Funk specifically states in column 1, lines 26-33, that systems such as the present invention that utilize the applied force of a magnetic field on a conductor through which is passing a current have disadvantages and therefore would teach away from the claimed invention.

Funk then goes on to disclose a system wherein the movement of a conductor in a magnetic field is used to generate a current in the conductor which is then measured. This then functions in a completely different manner from the present invention wherein a current is passed through the conductor to create the movement. As a result, the Funk reference clearly cannot anticipate the subject matter of claims 1, 14 and 16-20 and therefore any further rejection under 35 USC §102(e) is respectfully traversed.

Claims 6 and 12 stand rejected as being obvious under 35 USC §103 over Kadar in view of Richards (U.S. Patent 7,064,541). Inasmuch as claims 6 and 12 ultimately depend from claim 1, the above comments regarding Kadar's failure to anticipate the subject matter of claim 1

are herein incorporated by reference. In view of the claimed elements which are missing from the Kadar reference, they must be disclosed in the Richards reference in order for a combination to render obvious the subject matter of claims 6 and 12.

A review of the Richards reference will show that it discloses a resonant magnetometer having a feedback loop incorporating a voltage controlled oscillator (VCO) to provide the drive signal. The Richards approach has the disadvantage that an electronic system such as a phase locked loop (PLL) is required to maintain the VCO at the correct operating frequency. This circuitry is shown in Figure 3 of Richards and described in column 4, beginning at line 8.

Applicants have found that a much simpler technique based upon positive feedback can replace the PLL and VCO in the Richards embodiment. Because all features of Applicants' independent claim, and especially claims 6 and 12 dependent thereon, are not shown in either Kadar or Richards, even if these references were combined, they fail to render obvious the subject matter of claims 6 and 12 and any further rejection under 35 USC §103 is respectfully traversed.

Claim 22 also stands rejected under 35 USC §103 as being obvious over Funk in view of Pinson (U.S. Patent 5,920,012). Inasmuch as claim 22 ultimately depends from claim 1, the above comments with respect to claim 1 distinguishing over the Funk reference are herein incorporated by reference. Because claimed elements and claimed interrelationships between elements are missing from the Funk reference, they must be shown in the Pinson reference in order to support any *prima facie* case of obviousness. However, the Examiner does not allege that any of the features missing from claim 1 are shown in the Pinson reference. Therefore, even

if these two references were combined, they would not teach the subject matter of Applicants' independent claim 1.

Moreover, even if they did, there is no reason for picking and choosing elements from the Funk and Pinson references and then combining those elements in the manner of Applicants' independent claim 1 or claims dependent thereon. As a result, claim 22 simply is not rendered obvious by the combination of the Funk and Pinson references and there has been no establishment of any *prima facie* case of obviousness in view thereof. Any further rejection thereunder is respectfully traversed.

Claim 27 stands rejected under 35 USC §103 as unpatentable over Kadar in view of Hansen (U.S. Patent 5,953,683). Inasmuch as claim 27 ultimately depends from claim 1, the above comments distinguishing claim 1 from the Kadar reference are herein incorporated by reference. The Examiner does not appear to even allege that the Hansen reference teaches the claimed structures and structural interrelationships recited in independent claim 1. As a result, even if Kadar and Hansen were combined as suggested by the Examiner, they would not disclose all of the claimed elements and claimed interrelationships between elements that are set forth in independent claim 1 and in dependent claim 27.

Accordingly, it is submitted that the Patent Office has failed to establish any *prima facie* case of obviousness of claim 27 over the Kadar reference in view of Hansen and any further rejection thereunder is respectfully traversed.

The Examiner has indicated that claims 8-11 would be allowable if rewritten in independent form. This acknowledgment of allowable subject matter in claims 8-11 is very much appreciated. While claims 8-11 remain ultimately dependent from claim 1, Applicants

have included newly written claims 28-31 generally corresponding to claims 8-11, but rewritten with claim 28 in independent form. Allowance of newly written claims 28-31 is respectfully requested.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1 and 4-31 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, he is respectfully requested to contact Applicant's undersigned representative.

Respectfully submitted,

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